

WHAT IS CLAIMED IS:

1. A fabric coating composition with latent heat effects, the composition comprising:

5 1 part of a polymer binder;

a hydrophilic microcapsule aqueous solution, wherein the hydrophilic microcapsule aqueous solution includes 1 to 40 parts of hydrophilic microcapsules;

10 a thickener, wherein a weight of the thickener is between about 2% and 12% of a weight of the hydrophilic microcapsules; and

water, wherein a weight percentage of water is between about 30% and 70% of a total weight of the composition.

2. The composition of claim 1, further comprising an antifoam agent
15 having a weight percentage of 0%-1%.

3. The composition of claim 1, wherein the hydrophilic microcapsules have shells made of waterborne polyurethane.

20 4. The composition of claim 1, wherein the hydrophilic microcapsules enclose a phase-change material and the phase-change material is selected from the following group consisting of carboxylic ester, alkyl or aromatic hydrocarbons, saturated or unsaturated C6-C30 fatty acids, aliphatic alcohols, C6-C30 aliphatic amines, esters, natural or synthetic wax, halogenated hydrocarbons and mixtures thereof.
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5. The composition of claim 1, wherein the thickener is selected from the following group consisting of poly acrylic acid, cellulose ester and its derivatives, polyethylene alcohol, other thickening agents and mixtures thereof.

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6. The composition of claim 2, wherein the antifoam agent is selected from the following group consisting of fatty acid salts, sulfonates, waterborne dispersible silicon oil or waterborne dispersible silicon powder.

10 7. The composition of claim 1, wherein a size of the microcapsules is between about 1 micron and 10 microns.

8. A method for manufacturing a fabric coating composition with latent heat effects, comprising the following steps:

15 providing a solution comprising a hydrophilic microcapsule solution, a polymeric binder and a thickener, wherein the hydrophilic microcapsule solution comprises a phase-change material enclosed within the microcapsules;

stirring the solution until a viscosity of the solution is larger than 6000 cps;
and

20 allowing the solution to set for a duration.

9. The method of claim 8, wherein the duration is between about 10 minutes and 6 hours.

25 10. The method of claim 8, further comprising adding an antifoam agent.

11. The method of claim 8, wherein a percentage of the hydrophilic microcapsules is no less than 25%.

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